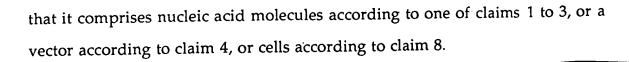
## **CLAIMS**

- 1) Isolated and purified nucleic acid molecule coding for a protein constituting a protein channel exhibiting the properties and structure of the TWIK-1 type channel.
- 2) Isolated and purified nucleic acid molecule coding for a protein constituting a potassium channel, characterized in that it codes for the protein the amino acid sequence of which is represented in the attached sequence list as number SEQ ID NO: 2 or a functionally equivalent derivative of this sequence.
- 3) Nucleic acid molecule according to claim 2, the sequence of which is represented in the attached sequence list as number SEQ ID NO: 1.
- 4) Vector containing a nucleic acid molecule according to one of claims 1 to 3.
- 5) Procedure for the production of a protein constituting a potassium channel exhibiting the properties and structure of the TWIK-1 type channel consisting of:
- transferring a nucleic acid molecule according to one of claims 1 to 3 or a vector according to claim 4, into a cellular host,
- culturing the cellular host obtained in the preceding step under conditions allowing the production of potassium channels exhibiting the properties of TWIK-1,
- isolating, by any suitable means, the proteins constituting the potassium channels exhibiting the properties and structure of the TWIK-1 type channel.

- 6) Procedure for the expression of a potassium channel exhibiting the properties and structure of the TWIK-1 type channel consisting of:
- transferring a nucleic acid molecule according to one of claims 1 to 3 or a vector according to claim 4, into a cellular host,
- culturing the cellular host obtained in the preceding step under conditions allowing the expression of potassium channels exhibiting the properties and structure of the TWIK-1 type channel.
- 7) Procedure according to one of claims 5 or 6, characterized in that the cellular host is selected from among the prokaryotes or the eukaryotes and, particularly, from among the bacteria, the yeasts, mammal cells, plant cells or insect cells.
- 8) Cell expressing the potassium channels exhibiting the properties and structure of the TWIK-1 type channel obtained by the procedure according to claim 6 or 7.
- 9) Procedure for screening substances capable of modulating the activity of the potassium channels of the TWIK-1 type channel, characterized in that:
- one brings into contact variable amounts of a substance to be tested with the cells expressing the potassium channels exhibiting the properties and structure of the TWIK-1 type channel according to claim 8, then
- one measures, by any suitable means, the possible effects of said substance on the currents of the potassium channels exhibiting the properties and structure of the TWIK-1 type channel.
- (10) Pharmaceutical composition for the compensation of a deficiency in the potassium channels at the level of one or more tissues, characterized in



- 11) Isolated and purified protein constituting a potassium channel exhibiting the properties and structure of the TWIK-1 type channel.
- 12) Protein according to claim 11, the amino acid sequence of which is represented in the attached sequence list as number SEQ ID NO: 2, or a functionally equivalent derivative of this sequence.
- 13) Pharmaceutical composition for the compensation of a deficiency in the potassium channels at the level of one or more tissues, characterized in that it comprises a protein according to claim 11 or 12.
- 14) Monoclonal or polyclonal antibody directed against a protein according to claim 11 or 12.

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